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Robert H. Rubin (1941–2013)

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Robert (“Bob”) Rubin died on Sunday March 3, 2013. He was 71.

Bob’s hometown was Philadelphia, Pennsylvania. He completed undergraduate and graduate studies at Case Western Reserve University in Cleveland, Ohio. His advisor, Robert Hjellming, was interested in the physics of H II regions — interstellar clouds of gas ionized by nearby hot stars. He ignited in Bob an interest in such objects that endured the rest of his life. Bob’s thesis included a detailed model for the photoionization and thermal structure of an H II region. This was the first such model to accurately

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incorporate radiative transfer of the ionizing photons and, consequently, Bob’s continually updated NEBULA code has been used extensively ever since. After receiving his Ph.D. in 1967, Bob took postdoctoral positions at the National Radio Astronomy Observatory and then at the University of Illinois, after which he taught for several years at California State University at Fullerton.

In 1980 Bob moved to NASA Ames where he began modeling H II regions to interpret measurements of far infrared emission made from the Kuiper Airborne Observatory (KAO) by Ed Erickson’s group. For example, combined with the group’s data, the models established gradients as a function of distance from the Galactic Center in the abundances of nitrogen, oxygen, neon, and sulfur relative to hydrogen, and provided evidence for the previously unsuspected presence of hot stars in the vicinity of the Galactic Center.

To further our understanding of the structure and composition of ionized nebulae, Bob devised observing programs to measure spectral lines from Galactic and extra-galactic sources to compare with his models. More recently he worked to deduce the unobservable extreme ultra-violet spectral energy distributions of hot stars that are critical to the relevant physics in these nebulae. Via successful proposals, he obtained data on both H II regions and planetary nebulae with the KAO, various radio

telescopes, the Hubble Space Telescope, the Infrared Space Observatory (ISO), the Spitzer Space Telescope, the Herschel Space Observatory, and most recently SOFIA. Bob consistently supported his research at Ames with such proposals, funded by NASA through his personal venture — named for his favorite, signature nebula — Orion Enterprises.

One of the most significant aspects of Bob's legacy is the many students that he mentored over the years. He always involved students in his research activities, attracting them both from local high schools and through various Ames programs that support college students for a semester or a summer. Often Bob included them as co-authors on his papers, deservedly for their efforts and in gratitude for their help. Many of his high-school students have gone on to study at very top-rated American universities.